

CLAIMS

1. A method for producing a metal oxide in which an amorphous powder containing organic metal chelate complexes is used as a raw material.
2. A method according to claim 1, wherein the amorphous powder containing the organic metal chelate complexes is obtained by mixing metallic materials with an organic chelating agent so as to give a predetermined metal composition to prepare a transparent aqueous solution of organic metal chelate complexes and then spray-drying the aqueous solution.
3. A method according to claim 2, wherein the organic chelating agent is an amino-carboxylic acid chelating agent that is not thermally decomposed at a temperature of 200 °C or less.
4. A method according to claim 2 or 3, wherein the chelating agent with at least stoichiometric quantity of the metallic materials is mixed with the metallic materials so as to allow all of the metallic materials for forming complex salts completely to prepare the transparent aqueous solution.
5. A method according to any of claims 2 to 4, wherein a reducing agent and/or an antioxidant is added to the aqueous solution of organic chelate complexes so as to prevent the oxidation of metal ions therein.

6. A method according to any of claims 1 to 5, wherein the organic metal chelate complexes are multi-element organic metal chelate complexes.

7. A method according to any of claims 1 to 6, in which the amorphous organic metal chelate complexes are sintered at a low temperature.

8. A target for producing a thin metal oxide film, the target being obtained by molding an amorphous powder containing organic metal chelate complexes into a tablet.

9. A method of producing the target of claim 8 comprising mixing metallic materials with an organic chelating agent so as to give a predetermined metal composition to prepare a transparent aqueous solution of organic metal chelate complexes, spray-drying the aqueous solution to obtain an amorphous powder of the organic metal chelate complexes in which molecules of the organic metal chelate complexes are mixed with each other, and press molding the amorphous powder into a tablet.

10. A method according to claim 9, wherein the organic chelating agent is an amino-carboxylic acid chelating agent which is not thermally decomposed at a temperature of 200 °C or less.

11. A method according to claim 9 or 10, wherein the chelating agent with at least stoichiometric quantity of the metallic materials is mixed with the metallic materials so as to allow all of the metallic materials for forming complex salts completely to prepare the transparent aqueous solution.

12. A method according to any of claims 9 to 11, wherein a reducing agent and/or an antioxidant is added to the aqueous solution of organic chelate complexes so as to prevent the oxidation of metal ions therein.

13. A method according to any of claims 9 to 12, wherein the organic metal chelate complexes are multi-element organic metal chelate complexes.

14. A method of forming a thin metal oxide film, in which the thin metal oxide film is formed by a laser deposition method using the target of claim 8.

15. A method according to claim 14, wherein the organic metal chelate complexes are multi-element organic metal chelate complexes.

16. A method according to claim 14 or 15, wherein the thin metal oxide film is a thin film of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$.

17. A method according to claim 14 or 15, wherein the thin metal

oxide film is a thin film of SrTiO₃.